

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No. 10/617,822
Atty Docket No.: Q71182

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (currently amended): A magnetic recording medium having a nonmagnetic substrate on which is provided at least a ~~softly~~soft magnetic under-film, an orientation control film that controls an orientation of a film directly above, a perpendicular magnetic recording film having an axis of easy magnetization oriented to be mainly perpendicular to the substrate, and a protective film, wherein the orientation control film has a material composition forming a C11_b structure.

Claim 2. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~should include~~ includes one, two or more selected from at least Al, Ag, Au, Cu, Ge, Hf, Ni, Si, Ti, Zn and Zr.

Claim 3. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a CuHf, CuTi, or CuZr alloy.

Claim 4. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a CuHf, CuTi, or CuZr alloy.

Claim 5. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a GeW or GeMo alloy.

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Claim 6. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a GeW or GeMo alloy.

Claim 7. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a SiMo, SiW, or SiRe alloy.

Claim 8. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a SiMo, SiW, or SiRe alloy.

Claim 9. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a ZnHf or ZnTi alloy.

Claim 10. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a ZnHf or ZnTi alloy.

Claim 11. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a NiTa alloy.

Claim 12. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~be~~is a NiTa alloy.

Claim 13. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the orientation control film ~~should have~~has a thickness of not less than 0.5 nm and not more than 20 nm.

Claim 14. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the orientation control film ~~should have~~has a thickness of not less than 0.5 nm and not more than 20 nm.

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Claim 15. (currently amended): The magnetic recording medium according to claim 1, wherein ~~it is desirable that~~ the perpendicular magnetic recording film ~~be~~is formed of a material that includes at least Cr and Pt.

Claim 16. (currently amended): The magnetic recording medium according to claim 2, wherein ~~it is desirable that~~ the perpendicular magnetic recording film ~~be~~is formed of a material that includes at least Cr and Pt.

Claim 17. (currently amended): A method of manufacturing the magnetic recording medium according to claim 1, comprising carrying out, in order, at least a step of forming a ~~soft~~softly magnetic under-film on a nonmagnetic substrate, a step of forming an orientation control film that controls an orientation of a film directly above, a step of forming a perpendicular magnetic recording film having an axis of easy magnetization oriented to be mainly perpendicular to the substrate, and a step of forming a protective film.

Claim 18. (currently amended): A method of manufacturing the magnetic recording medium according to claim 2, comprising carrying out, in order, at least a step of forming a ~~soft~~softly magnetic under-film on a nonmagnetic substrate, a step of forming an orientation control film that controls an orientation of a film directly above, a step of forming a perpendicular magnetic recording film having an axis of easy magnetization oriented to be mainly perpendicular to the substrate, and a step of forming a protective film.

Claim 19. (original): A magnetic recording and reproduction apparatus comprising the magnetic recording media according to claim 1 and a magnetic head that records and reproduces

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information on the magnetic recording medium, wherein the magnetic head is a magnetic monopole head.

Claim 20. (original): A magnetic recording and reproduction apparatus comprising the magnetic recording media according to claim 2 and a magnetic head that records and reproduces information on the magnetic recording medium, wherein the magnetic head is a magnetic monopole head.